UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,606	09/19/2003	Zafer Sahinoglu	MERL-1499	6389

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EXAMINER
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/665,606	SAHINOGLU ET AL.
	Examiner	Art Unit	
	DAVID OVEISSI	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *16 April 2008*.
2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-10* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-10* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed April 16, 2008 have been fully considered but they

are not persuasive.

Argument

Applicant argued that Zhang does not teach channel condition.

Response: Zhang teaches channel condition (see column 4 line 52 "Favorable channel

condition" somehow the channel condition is measured in order to for the device to

transmit at the higher rate, column 6 lines 52-57 "dynamic wireless channel conditions"

the channel coding and source coding are adapted to the dynamic channel conditions.

Somehow qualitatively measured must be taken in order to modify the channel and

source coding., column 7 lines 4-15 "...channel conditions is good (i.e., the channel is

stable and less noisy, and error rate is low and signal-interference ratio is

high)...channel condition is bad....) for further channel condition please see column 8

lines 30 "predicated channel condition, 36 "it probes the current channel condition, 41-

44 "The BER reflects the fluctuation of the wireless channel conditions", lines 42-44 "the

current channel condition is parameter for determining the proper channel coding",

column 9 lines 56-57 "the operational sate of the mobile system is adaptively set

according to the channel conditions," finally please see column 10 line 57 for current

channel condition $b_{current}$ and please see column 11 line 1-4 b_{new}).

Argument

Applicant argued that Zhang does not teach measuring rate and distortion

characteristics of multimedia.

Response: Zhang teaches measuring rate and distortion characteristic of the

multimedia (see abstract "a multimedia compression system for generating <u>frame rate</u>

scalable data in the case of video, and more generally, universally scalable data.

Universally scalable data is scalable across all of the relevant characteristics of data. In

case of video, these characteristics include <u>frame rate, resolution and quality</u>…. Tree

structured vector quantization or tree structured scalar quantization for generating the

quality…). The scalar quantization means measuring some characteristics. These

include rate and distortion characteristics of multimedia. Please also see column 11 line

55 distortion measure, column 12 line 28 "… error distortion measure.", and column 13

line 58-61 "distortion measure").

Argument

Applicant argued that Zhang does not teach error resilient source encoder. Further,

applicant argued that Zhang only adjusts the parameters of his one encoder. He does

not select from a set of encoders as claimed.

Response: In order to response to this argument let's look at the claim language

"providing a set of error resilient source encoding procedures". The claim can be read

as a set of source encoding procedures. In this case Zhang teaches "the source

encoder may implement separate coding algorithms.. for example, for an inputting video

signal, a complexity-scalable Motion Estimation (ME) algorithm is preferably used (see

column 6 lines 60-65). With respect to the word resilient the word resilient is defined as

adaptive in dictionary. Therefore, the Adaptive source Encoder can be interpreted as

Resilient Source Encoder. If the applicant defines resilient as quantity first there is no

multiplicity of encoder in the drawings also, there is no mention of error resilient source

encoder in the applicant drawings. In addition, Zhang teaches the multiplicity of both

source encoders as well as channel encoders (see column 15 Lines 6-8). Also, looking

at the applicant's application paragraph 37 ".. .a set of source error resilience

procedures available to the source encoder" clearly shows that applicant has meant a

set of procedures not a set of encoders.

Argument

Applicant argued that Zhang has only one channel encoder.

Response: Referring to the applicant application paragraph 42 it says "there is a set of

C of the channel encoding procedures "this does not mean there are a set of channel

encoders.

Argument

Applicant argues that Zhang does not teach objective function.

Response: An object function is maximization or minimization of some object values

subject to some constraints. Zhang in the abstract and elsewhere teaches many

different object functions. For example in the abstract Zhang teaches total effective data

rate from all the mobile devices is maximized under constraints of the total received

power and the error protection level requirements for the mobile devices. In fig.5 block

"530", Zhang clearly teaches an object function Finding ΔP_t that Minimizes the Total

Power Consumption Subject to the Total Transmission and Distortion Constraints. This is a perfect example of an object function. It shows that once cannot have an absolute minimization in fact this optimization problem.

Argument

Applicant argued that there is no jointly a particular error resilient source encoding procedure, a particular channel encoding procedure, and a particular power level based on the condition of the channel and the rate and distortion characteristics, while minimizing an objective function and satisfying a constraint.

Response: The abstract teaches this limitation. A power control to adjust transmission power … source coding and channel coding to minimize its total power consumption while maximizing the system capacity in terms of the total effective transmission rates .. data distortion and the maximum transmission rate to adjust the parameters for source coding, channel coding, and transmission under the constraints to result in redistribution of power between the components that provide the minimized total power consumption. With respect to channel condition Zhang teaches channel condition (see column 4 line 52 "Favorable channel condition" somehow the channel condition is measured in order to for the device to transmit at the higher rate, column 6 lines 52-57 "dynamic wireless channel conditions" the channel coding and source coding are adapted to the dynamic channel conditions. Somehow qualitatively measured must be taken in order to modify the channel and source coding., column 7 lines 4-15 "...channel conditions is good (i.e., the channel is stable and less noisy, and error rate is low and signal-interference ratio is high)...channel condition is bad....) for further channel condition please see column 8

lines 30 "predicated channel condition, 36 "it probes the current channel condition, 41-

44 "The BER reflects the fluctuation of the wireless channel conditions", lines 42-44 "the

current channel condition is parameter for determining the proper channel coding",

column 9 lines 56-57 "the operational sate of the mobile system is adaptively set

according to the channel conditions," finally please see column 10 line 57 for current

channel condition $b_{current}$ and please see column 11 line 1-4 $b_{new)}$.

Argument

Applicant argued that Zhang does teach a method, in which the objective function

minimizes distortion while the constraint is energy .

Response: The block 530 teaches this limitation perfectly.

Argument

Applicant argued that Zhang does not teach a method, in which the objective function

minimizes distortion while the constraint is energy.

Response: By applying simple algebraic theorems   to the block 530 Zhang teaches

this limitation. It is well known that A=B is the same as B=A.

Now it we represent the block 530 as the following

 Min(Tp) subject to (Dc) where Tp is total power consumption and Dc is distortion

constraints. This relation can be written as Min(Dc) subject to (Tp) .

Argument

Applicant argued that Chadda was filed in June 30, 1997. JPEG 2000 is a wavelet-

based image compression standard. Chadda could not have foreseen JPEG 2000.

Response: Applicant's says that In the preferred embodiment, the source encoding 210

is according to the JPEG 2000 …..However, it should be understood that other

scaleable source encoders can also be used. Therefore, if the applicant encoder is

backward compatible, then Chadda teaches this limitation.

Argument

Applicant argues that Zhang or Chadda do not teach the objective function is minimized

and the constraint is satisfied by analyzing an energy-distortion curve.

Response: An energy-distortion curve can be obtained by running some mathematical

or empirical test and plot the result and used it as chart.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1- 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Zhang et al. (US 7,096,034 B2) in view of **Chaddha** (US 6,233,017 B1).

For claims 1 and 10 **Zhang** teaches a method/system for encoding multimedia to be transmitted on a channel, comprising:

measuring a condition of the channel *(see Fig. 5 "Probing Network Condition", column 4 line 40, and lines 52-53)*;

providing a set of error resilient source encoding procedures *(see column 1 lines 42-49)*;

providing a set of channel encoding procedures*(see column 1 lines 42-49)*;

providing a set of transmitter power levels *(see column 8 lines 63-65)*;

providing an objective function and a constraint based on energy and distortion *(see abstract)*; and

selecting jointly a particular error resilient source encoding procedure, a particular channel encoding procedure, and a particular power level based on the condition of the channel and the rate and distortion characteristics, while minimizing an objective function and satisfying a constraint *(see column 1 lines 32-49)*.

Zhang does not teach measuring rate and distortion characteristics of the multimedia limitation. Furthermore, **Chaddha,** from the same field of endeavor teaches this limitation *(see abstract)*. Thus, it would have been obvious to the person of ordinary skill in the art at the time invention to combine the multimedia characteristics measurement of **Chaddha** in the JSCC scheme of **Zhang**. The motivation for this combination is to provide a flexible JSCC for multimedia.

For claim 2 **Zhang** teaches a method, in which the objective function minimizes

energy while the constraint is a distortion *(see Fig.5 "530")*.

For claim 3 **Zhang** teaches a method, in which the objective function minimizes distortion while the constraint is energy *(see column 2 lines 19-21)*.

For claim 4 **Zhang** teaches a method, further comprising: applying the particular error resilient source encoding procedure to the multimedia to produce a bit stream; applying the particular channel encoding procedure to the bitstream to produce an output signal; and applying the particular power level to the output signal for transmission *(see column 1 line 44, column 6 lines 52-61, and column 8 lines 63-66)*.

For claim 5 **Zhang** does not teach a method, in which the bitstream includes a plurality of layers, and the selecting is performed independently for each layer. Furthermore, **Chaddha** teaches this limitation *(see abstract)*. Thus, it would have been obvious to the person of ordinary skill in the art at the time invention to combine the multimedia characteristics measurement of **Chaddha** in the JSCC scheme of **Zhang**. The motivation for this combination is to provide a flexible JSCC for multimedia.

For claim 6 **Zhang** does not teach a method , in which the condition includes bandwidth. Furthermore, **Chaddha** teaches this limitation *(see column 2 lines 5-6)*. Thus, it would have been obvious to the person of ordinary skill in the art at the time invention to combine the multimedia characteristics measurement of **Chaddha** in the

JSCC scheme of **Zhang**. The motivation for this combination is to provide a flexible

JSCC for multimedia.

For claims 7 and 8 Zhang does not teach a method, in which the multimedia

include JPEG 2000 images. Furthermore, **Chaddha** teaches this limitation *(see column*

25 lines 62, and 64). Thus, it would have been obvious to the person of ordinary skill in

the art at the time invention to combine the multimedia characteristics measurement of

Chaddha in the JSCC scheme of **Zhang**. The motivation for this combination is to

provide a flexible JSCC for multimedia.

For claim 9 **Zhang** does not teach a method, in which the objective function is

minimized and the constraint is satisfied by analyzing an energy-distortion curve.

Furthermore, **Chaddha** teaches this limitation *(see column 25 line 51).* Thus, it would

have been obvious to the person of ordinary skill in the art at the time invention to

combine the multimedia characteristics measurement of **Chaddha** in the JSCC scheme

of **Zhang**. The motivation for this combination is to provide a flexible JSCC for

multimedia.

Conclusion

3.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure **Verto et al. (US 7,324,592 B2), Chiang et al. (6,160,846), and**

Chou et al. (US 7,222,285 B2).

4.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DAVID OVEISSI whose telephone number is (571)270-

3127. The examiner can normally be reached on Monday to Friday 8:00 AM to 5:00 PM

EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Huy D. Vu/
Supervisory Patent Examiner, Art Unit 2616